Listing of Claims:

1. (Currently Amended) A method of fabricating ~~$GaAs_{(1-x)}Sb_x$ layers~~ a tunnel junction of a vertical cavity surface emitting laser (VCSEL), comprising:

locating a substrate in an MOCVD chamber;

setting a temperature of the MOCVD chamber between 500 °C and 650 °C; and

growing a tunnel junction including $GaAs_{(1-x)}Sb_x$ on the substrate using an MOCVD process in which a source of Ga, a source of Sb, and a source of As are present.

2. (Original) The method according to claim 1, wherein x has a value corresponding to a ratio of As to Sb.

3. (Original) The method according to claim 2, wherein the value of x is 0.5.

4. (Original) The method according to claim 2, wherein the value of x is less than 0.5.

5. (Original) The method according to claim 1, wherein the source of Ga is TMGa or TEGa, and the source of Sb is TMSb.

6. (Original) The method according to claim 1, wherein the source of As is AsH_3 or TBAs.

7. (Original) The method according to claim 1, further including carbon doping the $GaAs_{(1-x)}Sb_x$ using CCl_4 or CBr_4.

8. (Original) A tunnel junction having of a p-doped $GaAs_{(1-x)}Sb_x$ layer.

9. (Currently Amended) [[A]] The tunnel junction according to claim 8, wherein the p-doped $GaAs_{(1-x)}Sb_x$ layer is doped with carbon with a concentration greater than $1x10^{19}$ cm^{-3}.

10. (Currently Amended) [[A]] The tunnel junction according to claim 9, further including an n-doped layer of InP, AlInAs, AlInGaAs, or InGaAsP.

11. (Currently Amended) [[A]] The tunnel junction according to claim 10, wherein

the n-doped layer is doped with a concentration greater than $5x10^{19}$ cm^{-3}, wherein the $GaAs_{(1-x)}Sb_x$ layer is doped with a concentration greater than $5x10^{19}$ cm^{-3}, and wherein the n-doped layer is less than about 10 nanometers thick.

12. (Currently Amended) [[A]] The tunnel junction according to claim 10, wherein the n-doped layer is InP, and wherein x has a value of 0.5.

13. (Original) A vertical cavity surface emitting laser, comprising:

an active region having a plurality of quantum wells, and

a tunnel junction over said active region, wherein said tunnel junction includes a $GaAs_{(1-x)}Sb_x$ layer.

14. (Currently Amended) [[A]] The vertical cavity surface emitting laser according to claim 13, further including an n-type bottom spacer adjacent the active region, and an n-type bottom DBR adjacent the n-type bottom spacer.

15. (Currently Amended) [[A]] The vertical cavity surface emitting laser according to claim 13, further including an n-type top spacer adjacent the tunnel junction and an n-type top DBR adjacent the n-type top spacer.

16. (Currently Amended) [[A]] The vertical cavity surface emitting laser according to claim 13, wherein the $GaAs_{(1-x)}Sb_x$ layer is grown by MOCVD.

17. (Currently Amended) [[A]] The vertical cavity surface emitting laser according to claim 13, wherein the $GaAs_{(1-x)}Sb_x$ layer is doped with carbon with a concentration greater than $5x10^{19}$ cm^{-3}.

18. (Currently Amended) [[A]] The vertical cavity surface emitting laser according to claim 13, wherein said active region includes InGaAsP or AlInGaAs.

19. (Currently Amended) [[A]] The vertical cavity surface emitting laser according to claim 18, wherein said tunnel junction includes an n-type InP layer.

20. (Currently Amended) [[A]] The vertical cavity surface emitting laser according to

claim 13, wherein x is 0.5.